

NTSB Order No. EA-3857

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D.C.
on the 6th day of April, 1993.

Respondent .

Docket SE-11168

days² based on allegations that his failure to properly monitor his fuel supply caused him to make a forced landing due to fuel exhaustion. The law judge found that respondent violated 14 C.F.R. 91.9³, when he failed to adequately monitor the aircraft's fuel consumption in flight and carelessly continued the flight past the point where he should have realized that he had only a slim margin of safety which would not allow for even a slight computational error. (Tr. 245.)

On appeal, respondent contends that the engine failure was likely caused by a fuel leak (specifically, in the front fuel strainer and/or the right fuel tank) and not by any fuel mismanagement on his part. Respondent asserts that the Administrator's investigation was inadequate in that it did not explore other possible causes for the engine failure and did not attempt to explain the disappearance of much of the aircraft's unusable fuel. He suggests that the existence of a fuel leak would explain not only the fuel exhaustion, but also why only 27 ounces of fuel, rather than the full amount of unusable fuel⁴,

² Imposition of the 30-day suspension of respondent's pilot certificate (which by the time of the hearing had been upgraded to an airline transport pilot certificate) was waived by virtue of respondent's timely filing of a report under the Aviation Safety Reporting System.

³ Section 91.9 [now recodified as § 91.13(a)] provided:

§ 91.9 Careless or reckless operation.

No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

⁴ Along with his appeal brief, respondent submitted several

was drained from the tanks after the forced landing. Respondent also argues that the law judge improperly based his decision on speculation by the FAA's inspector that respondent may have encountered higher winds and used a higher power setting (thus using more fuel) than he had planned for.⁵

For the reasons discussed below, we deny respondent's appeal and affirm the initial decision.

On January 17, 1989, respondent was pilot in command of a Beechcraft C23 on a passenger-carrying flight departing from Fort Wayne, Indiana, with an intended destination of Greenfield, Iowa.

The 5.2 hour flight ended approximately one mile short of the Greenfield Airport when engine failure caused respondent to make an emergency landing. As a result of this landing the aircraft suffered structural damage to the left, right, and nose landing gear (all of which were severed by the impact), the right wing, and the underside.

FAA Inspector Nick Spasic, who arrived at the scene

(..continued)

documents (Beechcraft "Service Instructions" and a related "Information Kit") which purport to show that the total amount of unusable fuel for this type of aircraft was increased from 1.2 gallons, as stated in the original aircraft operating manual used by respondent (see Exhibit A-4), to 7.8 gallons. We grant the Administrator's motion to strike these documents and respondent's related arguments, because he has not shown why these documents could not have been presented at the evidentiary hearing. Furthermore, we note that respondent does not contend that the owner of the aircraft (respondent's father) was not made aware of these Service Instructions, but simply asserts that the terms of those Instructions (which involved installing new decals at fuel tank openings) were not complied with. (App. Br. at 10.)

⁵ The Administrator has filed a reply brief opposing respondent's appeal and urging us to affirm the initial decision.

approximately two hours after the forced landing, observed both fuel gauges on empty and, after looking into the fuel tanks using a mirror and flashlight, found no fuel in either tank. He found no fuel stains on the aircraft and no other evidence (e.g., fumes or spillage) of fuel leakage. After checking the oil and the ignition, and finding the fuel system to be intact (except for the front fuel strainer which had been pushed back and disconnected from fuel lines by the impact), Inspector Spasic concluded that the engine had stopped due to fuel exhaustion.

Some days after the incident, the owner of the aircraft (respondent's father) hired Jim Wesley, then the owner of an aircraft maintenance facility⁶, to conduct another inspection in order to determine whether the cause of the forced landing could have been something other than fuel starvation. When Mr. Wesley informed respondent's father, after his inspection, that fuel starvation did indeed appear to be the cause, respondent's father asked him to go back and check the fuel strainer. Mr. Wesley found that the fitting had broken off the strainer but that the strainer itself was intact and there were no fuel stains indicating cracks or leaks around the strainer. He determined that the fitting had been dislodged by the nose gear when it collapsed during the forced landing. Mr. Wesley then poured fuel into each fuel tank in order to check for leakage, and found

⁶ By the time of the hearing Mr. Wesley had become employed as an FAA aviation safety inspector.

none. He reported these findings to respondent's father.⁷

Subsequent to Mr. Wesley's inspection, a third inspection of the aircraft was conducted, this time by Michael Boorom (owner of another aircraft repair facility), who was acting at the behest of an insurance company. In contrast to the findings of Inspector Spasic and Mr. Wesley, Mr. Boorom reported seeing fuel stains behind the fuel strainer and on the bottom of the right wing, and also a crack inside the right fuel tank. In his opinion, the configuration of the stains indicated that fuel had leaked out during flight. He could not estimate how much fuel had leaked out.

Respondent testified that, prior to departing from Fort Wayne, he asked a fixed base operator to top off his fuel tanks, and then verified by visual inspection that they were "as full as they could get." (Tr. 136-7.)⁸ Respondent testified, and his flight plan confirms, that he believed he had six hours of fuel on board (based on a fuel burn of nine gallons per hour, which represents a 65% power setting) for what he estimated would be a five hour flight. In spite of respondent's stated belief that he had six hours of fuel, he testified that he actually calculated

⁷ Mr. Wesley testified that respondent's father never paid him for his services, claiming that Mr. Wesley had broken their contract when he informed the FAA of his findings and that he could not have put fuel into the tanks as claimed because a subsequent inspection had revealed a hole in the right tank. (Tr. 80.)

⁸ The aircraft operating manual indicates that the fuel tanks can hold a total of 60 gallons, 58.8 gallons of which are usable. (Exhibit A-4.)

his projected fuel consumption for the trip using a fuel burn rate of 10.5 gallons per hour (representing a power setting closer to 75%). At this rate of fuel burn, assuming the flight began with full fuel tanks, respondent could anticipate having enough fuel for only 5.6 hours of flight. (See Cruise Performance chart, Exhibit A-4.)

According to FAA Inspector Larry Young, respondent's flight navigation log for this flight (Exhibit R-15 at 5) indicates that he was indeed burning fuel at a rate of 10.2 or 10.3 gallons per hour. Inspector Young acknowledged that, according to this log, the flight appeared to be proceeding on schedule, suggesting that the winds aloft were as forecasted. However, he also stated his opinion that respondent's fuel exhaustion after only 5.2 hours of flight could be accounted for by his use of a higher power setting than planned for, due to encountering higher winds than were forecasted.⁹

Indeed, the law judge rejected respondent's testimony that he used a throttle setting of only 2500 RPM (which would have burned only nine gallons per hour), and concluded that respondent

⁹ Respondent's own testimony provides some support for the idea that he encountered higher winds than anticipated. He testified that he noticed his groundspeed was slower than planned and that the flight was 5-10 minutes behind schedule at Des Moines (38 miles from their destination of Greenfield). (Tr. 141-2.) He also noted that the winds on the ground at Greenfield were stronger than forecast. (Tr. 153-4.) His passengers (both also pilots) confirmed that at one point along the flight their groundspeed was slower than forecast (Tr. 176) and that the winds between Des Moines and Greenfield were higher than anticipated. (Tr. 170-1.)

in fact used a higher power setting which would be more consistent with the 10.5 gallon per hour fuel burn he used in his calculations. (Tr. 243.)¹⁰ This finding represents a credibility determination which we see no reason to disturb.

We agree with the law judge that the preponderance of the evidence establishes that respondent's forced landing was due to fuel exhaustion and not a mechanical malfunction. In spite of respondent's attempt to show that a fuel leak caused the aircraft to prematurely exhaust its fuel, we find that evidence unpersuasive. Although the law judge credited Mr. Boorom's testimony that he saw evidence of fuel leakage some two weeks after the incident, in our judgment, Inspector Spasic's and Mr. Wesley's testimony that they saw no such evidence in their earlier inspections (which were also credited by the law judge) is more probative on the issue of the aircraft's condition during the subject flight.¹¹

We also agree with the law judge's conclusion that the fuel exhaustion in this case was caused by respondent's fuel mismanagement. As the law judge explained in his initial

¹⁰ According to the Cruise Performance chart in the aircraft operating manual (Exhibit A-4), a throttle setting of 2625 (assuming an altitude of 5500 feet) or 2650 (assuming an altitude of 6500 feet) -- both of which represent a 75% power setting -- would result in a fuel burn of 10.8 gallons per hour. Respondent's planned cruising altitude was 6,000 feet. (Tr. 133-4.)

¹¹ Although there was no testimony on this point at the hearing, one could speculate that the fuel stains observed by Mr. Boorom might have resulted from Mr. Wesley's pouring and emptying of fuel in connection with his earlier checking of the tanks for leaks.

decision, respondent should have known, even based on his own calculations (assuming a fuel burn of 10.5 gallons per hour he had enough fuel for only 5.6 hours of flight), that his planned five-hour flight left little margin for error and that the 5-10 minute delay he noticed at Des Moines would further erode that margin.

Contrary to respondent's position on appeal, the Administrator was not obligated to explain what happened to the full amount of unusable fuel which he asserts should have remained in the fuel tanks, or to conclusively prove that respondent encountered higher winds and used a higher power setting than expected. We recognize that the FAA's investigation into this incident may not provide all the answers. However, in order to make out a prima facie case, the Administrator was only required to present evidence sufficient to support a reasonable inference that the engine failure was due to respondent's fuel mismanagement. In our judgment, the Administrator presented a prima facie case of carelessness, which respondent failed to overcome.

ACCORDINGLY, IT IS ORDERED THAT:

1. Respondent's appeal is denied; and
2. The initial decision is affirmed.

VOGT, Chairman, COUGHLIN, Vice Chairman, LAUBER, HART and HAMMERSCHMIDT, Members of the Board, concurred in the above opinion and order.